International Journal of Pharmacy and Technology, 2016, vol.8, N2, pages 14582-14591

Features of operation of the plant pigment system in a man-made environment

Kuzmin P., Bukharina I., Kuzmina A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016, International Journal of Pharmacy and Technology. All rights reserved.The paper shows the dynamics of photosynthetic pigment content in the leaves of native and introduced species of woody plants within the urban environment conditions. Fine-leaved linden and pendent birch growing in the plantations of sanitary protection zones of industrial enterprises and at main planting the content of chlorophyll a and b is reduced during the growing season in comparison with the plantation plants of conditional control zones, but at the same time the content of carotenoids with antioxidant properties and a protective function is increased. Balsam poplar in main plantations has an increased content of chlorophylls and carotenoids in June, but then their decrease takes place. The representatives of maple genus had a significant decrease of chlorophyll a content in leaves throughout the observation period in the city plantations. Chlorophyll b content increase was observed in leaves of the aboriginal species-Norway maple-in main plantations at the beginning of active vegetation period in 2015, and among the plantations of sanitary protection zones and in industrial enterprises and in plantations in July 2014, compared with the plantings of conditional control zones, which indicate its participation in adaptive reactions. Ashleaved maple-an introduced species-is characterized by b chlorophyll content reduction during an active vegetation period, compared with the indicators of conditional control zone during the same interval. Besides, the leaves of maple species demonstrate carotenoid content increase in June.

Keywords

Man-made stress, Pigment system, Resistant types, Woody plants